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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/677,221

10/03/2003

Takashi Ohsako

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EXAMINER

GARCIA, JOANNIE A

ART UNIT

PAPER NUMBER

2895

MAIL DATE

DELIVERY MODE

06/11/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/677,221	Applicant(s) OHSAKO ET AL.	
	Examiner JOANNIE A. GARCIA	Art Unit 2895	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15, 16, 24-26 and 28-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15, 24-26, 28-30, 36 and 37 is/are allowed.
- 6) ☒ Claim(s) 16 and 31-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 16, and 31-35, are rejected under 35 U.S.C. 103(a) as being unpatentable over Enomoto et al (US 2003/0032284 A1), in combination with the following comments.

Enomoto et al discloses forming a gate electrode having a metallic silicide layer 13 on a semiconductor substrate 1, wherein the metallic silicide layer comprises a tungsten silicide layer, the gate electrode having a metallic polysilicon layer 7 under the metallic silicide layer, and a SiN layer 15 on the tungsten silicide layer (Figures 3 and 4, and Paragraphs 0069, 0072, and 0073), decreasing grain boundaries on a surface of the metallic silicide layer after performing a reduced pressure process, at least a portion of the surface of the metallic silicide layer being exposed, said decreasing of the grain boundaries comprising a heat treatment on the metallic silicide layer in an atmosphere consisting of a mixture gas of chief elements of argon, nitrogen and ammonia and an oxidizable gas (Figure 8, and Paragraphs 0072, 0073, 0093, 0098, and 0134), and forming an oxide spacer 10/15 on a side wall of the metallic polysilicon layer and the metallic silicide layer of the gate electrode (Figures 3-4, and Paragraphs 0003, and 0071).

Enomoto et al discloses performing a heat treatment in an oxidizable gas on the metallic silicide layer (Paragraphs 0072 and 0073). Enomoto et al discloses the claimed

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invention except for including ammonia in a range of 1% to 3%, performing said heat treatment in the oxidizable atmosphere of less than 100 ppm, and performing said heat treatment at a temperature of 700 °C to 800 °C for a time of 30 sec to 40 sec at a pressure of 13 to 65 Pa. It would have been obvious to one having ordinary skill in the art at the time the invention was made to determine a suitable ammonia range, and a suitable time, temperature and pressure, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

In addition, the selection of the suitable ammonia range, time, temperature and pressure, it's obvious because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range. *In re Woodruff*, 16 USPQ2d 1935, 1937 (Fed. Cir. 1990). See also *In re Huang*, 40 USPQ2d 1685, 1688 (Fed. Cir. 1996)(claimed ranges or a result effective variable, which do not overlap the prior art ranges, are unpatentable unless they produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art). See also *In re Boesch*, 205 USPQ 215 (CCPA) (discovery of optimum value of result effective variable in known process is ordinarily within skill or art) and *In re Aller*, 105 USPQ 233 (CCPA 1995) (selection of optimum ranges within prior art general conditions is obvious).

Note that the specification contains no disclosure of either the critical nature of

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the claimed suitable range, time, temperature, and pressure, or any unexpected results arising therefrom. Where patentability it's said to be based upon particular chosen suitable ranges, times, temperatures, and pressures, or upon another variable recited in a claim, the Applicant must show that the chosen suitable ranges, times, temperatures, and pressures, are critical. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Allowable Subject Matter

Claims 15, 24-26, 28-30, 36, and 37, are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joannie García, whose telephone number is (571) 272-1861. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N.Drew Richards, can be reached on (571) 272-1736. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/N. Drew Richards/
Supervisory Patent Examiner, Art
Unit 2895

/JAG/
June 3, 2009

DRichards
SPE